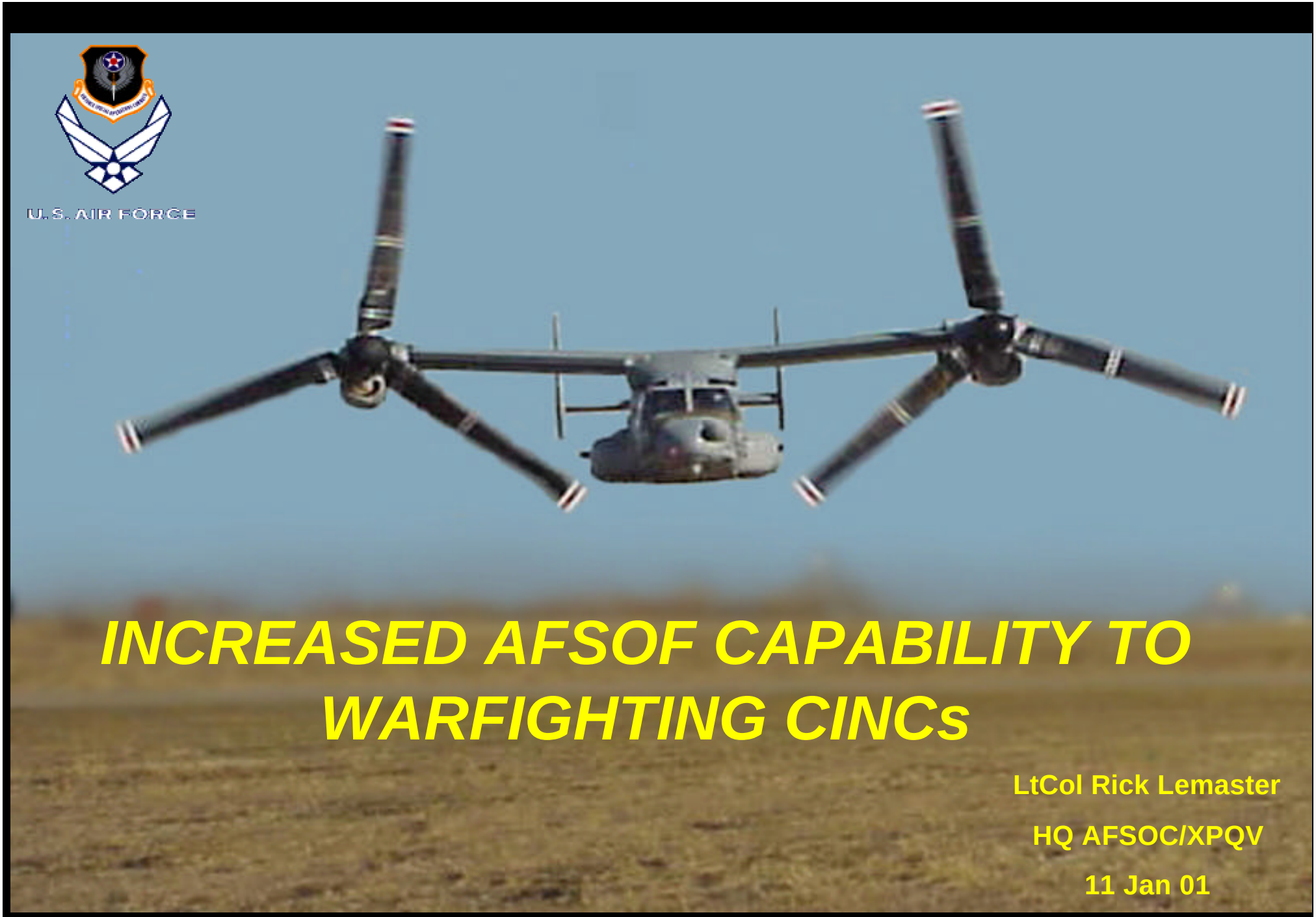
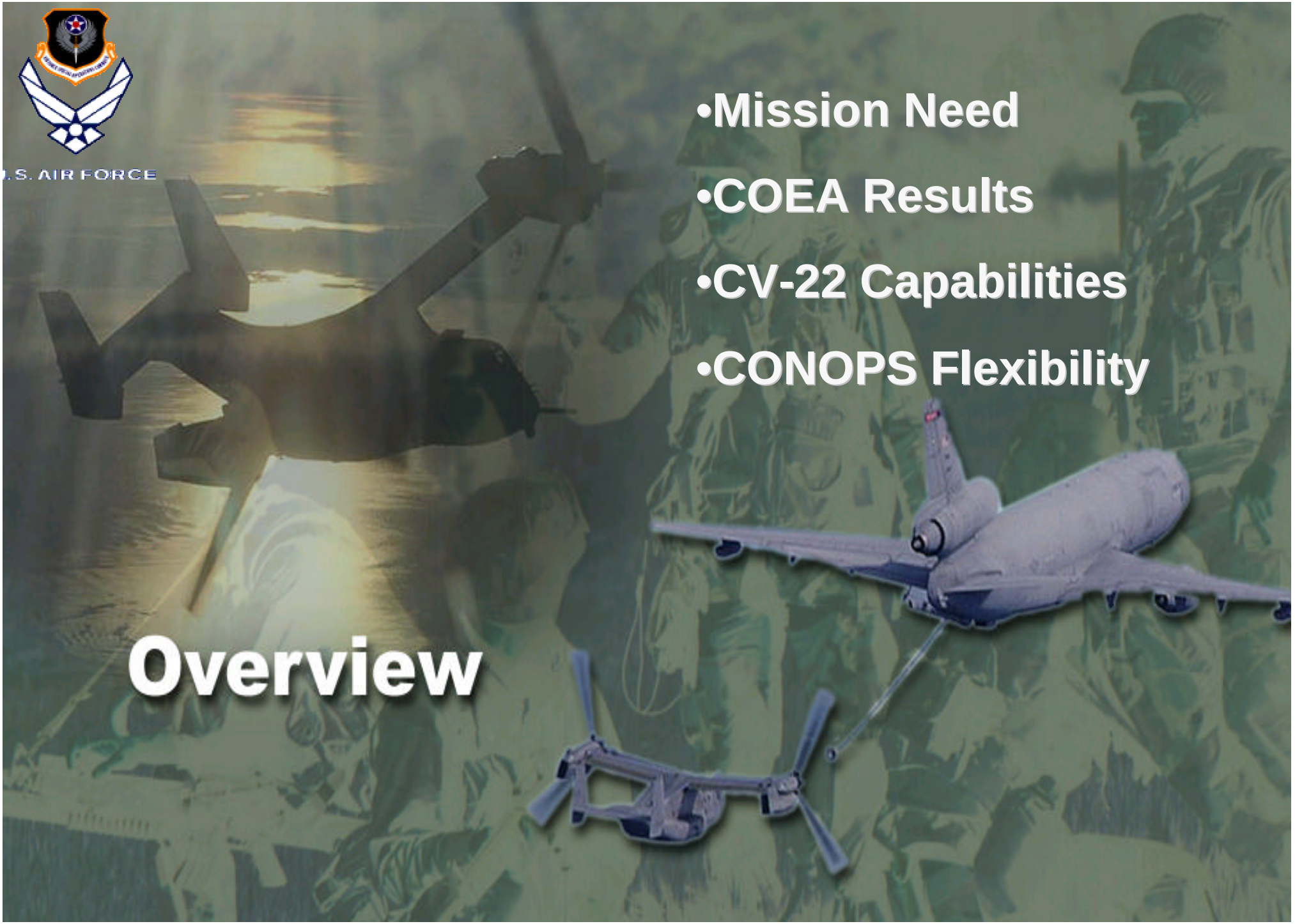


INCREASED AFSOF CAPABILITY TO WARFIGHTING CINCs

LtCol Rick Lemaster

HQ AFSOC/XPQV

11 Jan 01

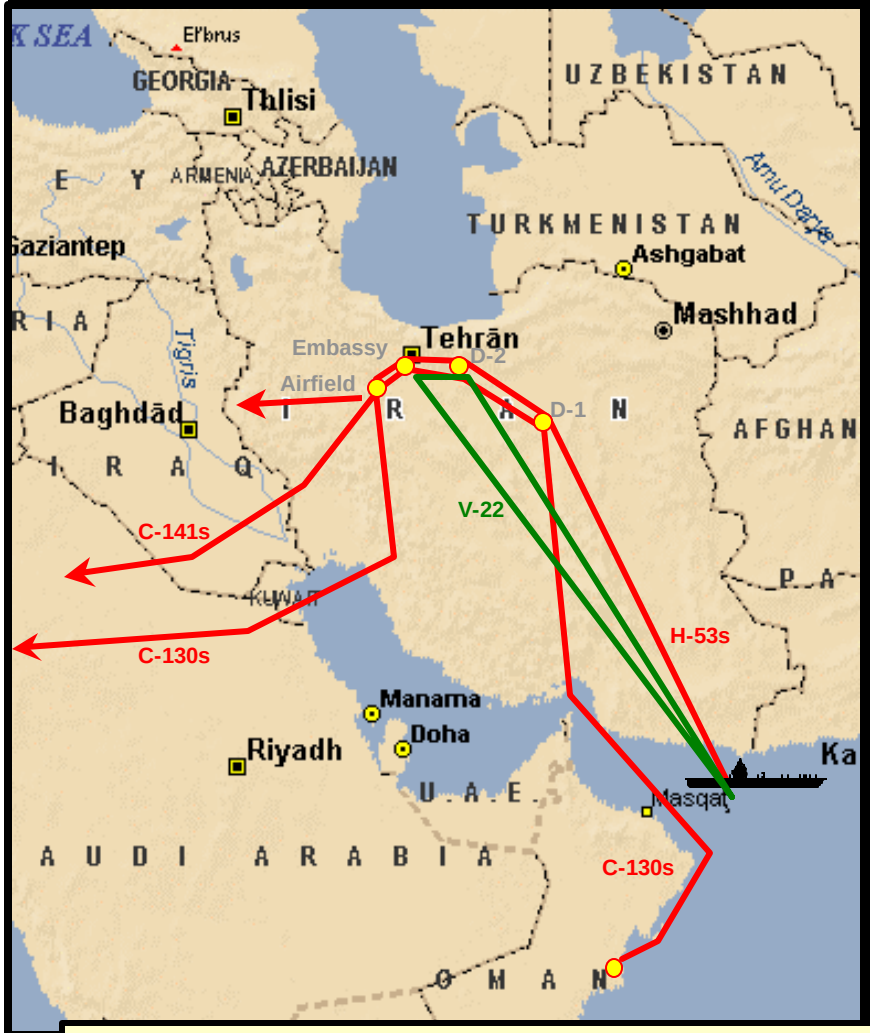

U.S. AIR FORCE
•Mission Need
•COEA Results
•CV-22 Capabilities
•CONOPS Flexibility
Overview

SOF CV-22 MISSION REQUIREMENTS

- Mission need first identified in 1981 and revalidated by the JROC in Jun 93.
  - Fulfills USSOCOM's long-standing requirement for a high-speed, long-range, VTOL aircraft
  - Primary mission of infiltration, exfiltration, or resupply of SOF in adverse weather using TF/TA radar during one period of darkness
  - Capable of supporting all 9 principle and 7 collateral SOF missions
  - Provide penetration in medium- to high-threat environments using robust self-defensive avionics and secure, anti-jam, redundant communications
  - Self-deploy worldwide

Operation Eagle Claw - Iran

Hostage Rescue Operation of U.S. Embassy compound in Tehran



Concept of Operations - 1980

1. RH-53Ds fly from Nimitz to “Desert One”
2. RH-53Ds / C-130s rendezvous at “Desert One”
3. Transfer Team/fuel from C-130s to helos
4. Helos fly to “Desert Two”
5. Team hides for 22 hrs at “Desert Two”
6. Team loads vans, enter Teheran and assaults
7. Helos arrive at compound and load all evacuees
8. All personnel transferred to C-141’s at airfield
9. Helos destroyed
10. C-141s fly to safe nation and land

35 hours

Concept of Operations with CV-22s

1. CV-22s fly from Nimitz to “Desert Two””
2. Team prepares for assault
3. Team enters Teheran and assaults
4. CV-22s depart compound with all evacuees
5. CV-22s fly to Nimitz

8 hours

CV-22 provides 77% reduction in execution timeline,
reduces overall mission complexity and increases probability of success

AFSOF MISSION AREAS

- **AFSOF supports SOF in all principle missions and collateral activities.**
- **AFSOF supporting missions have been grouped into mission areas.**
  - ***Shaping the Battlefield*. Includes training, advising, assisting, and assessing foreign aviation organizations**
  - ***Information Operations*. Focus on offensive aspects**
  - ***Precision Employment/Strike*. Precise and responsive weapons delivery to SOF or conventional forces.**
  - ***SOF Mobility*. Rapid, global airlift of personnel & equipment through hostile air space**
  - ***SOF Agile Combat Support*. Combination of all support functional areas**

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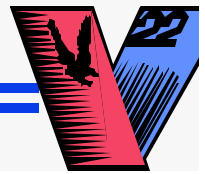
CURRENT AFSOF MOBILITY ASSETS



- MC-130 Combat Talon I/II is the primary long-range, medium lift, penetrating, infil/exfil platform in adverse weather (10 MC-130Es/24 MC-130Hs)
- MH-53J/M Pave Low is a medium-range penetrating helicopter capable of infil/exfil in adverse weather (38 MH-53J/Ms)
- MC-130P is a low-level capable tanker for refueling SOF vertical lift assets in low to select medium threat environments (24 MC-130Ps)

CURRENT INVENTORY DEFICIENCIES

- **The current inventory has a diminished probability of successful mission completion, coupled with increased risk to SOF personnel due to:**
  - **Inability to complete MTW and national missions (clandestinely) within one period of darkness due to limited airspeed capability**
  - **Need for additional support on a significant number of missions which increases operational signature**
  - **Limited growth potential for self-protection avionics systems due to space/weight constraints**

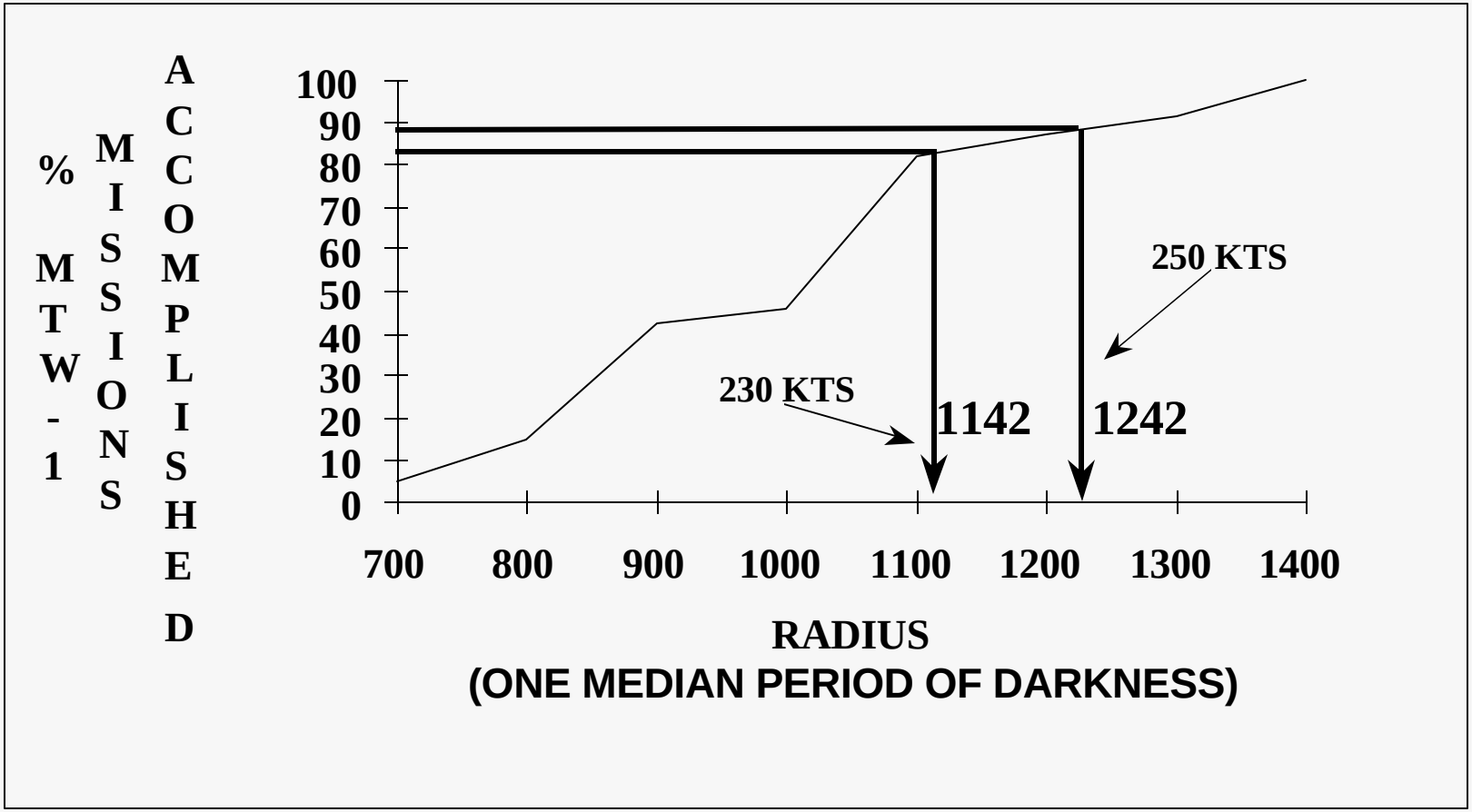


COEA OF THE MV-X INTERIM/FINAL REPORT - Dec 93

U.S. AIR FORCE

- **CV-22 was the preferred alternative, although more expensive, based on operational effectiveness and the only alternative that substantially met the stated need.**
  - **Met the requirement for timeliness and OPSEC during deployment phase**
  - **Met mission execution requirements**
  - **Accomplished the majority of mission requirements for MRC and national missions**
  - **Minimized the occurrence of low-level night aerial refuelings, especially those occurring in hostile airspace**
  - **Least sensitive to uncertainties and assumptions, such as those regarding overseas basing and strategic airlift**
  - **Tilt-rotor technology provided the speed essential to meet SOF taskings that is not feasible with helicopter technology.**

COEA SPEED ANALYSIS... ONE PERIOD OF DARKNESS



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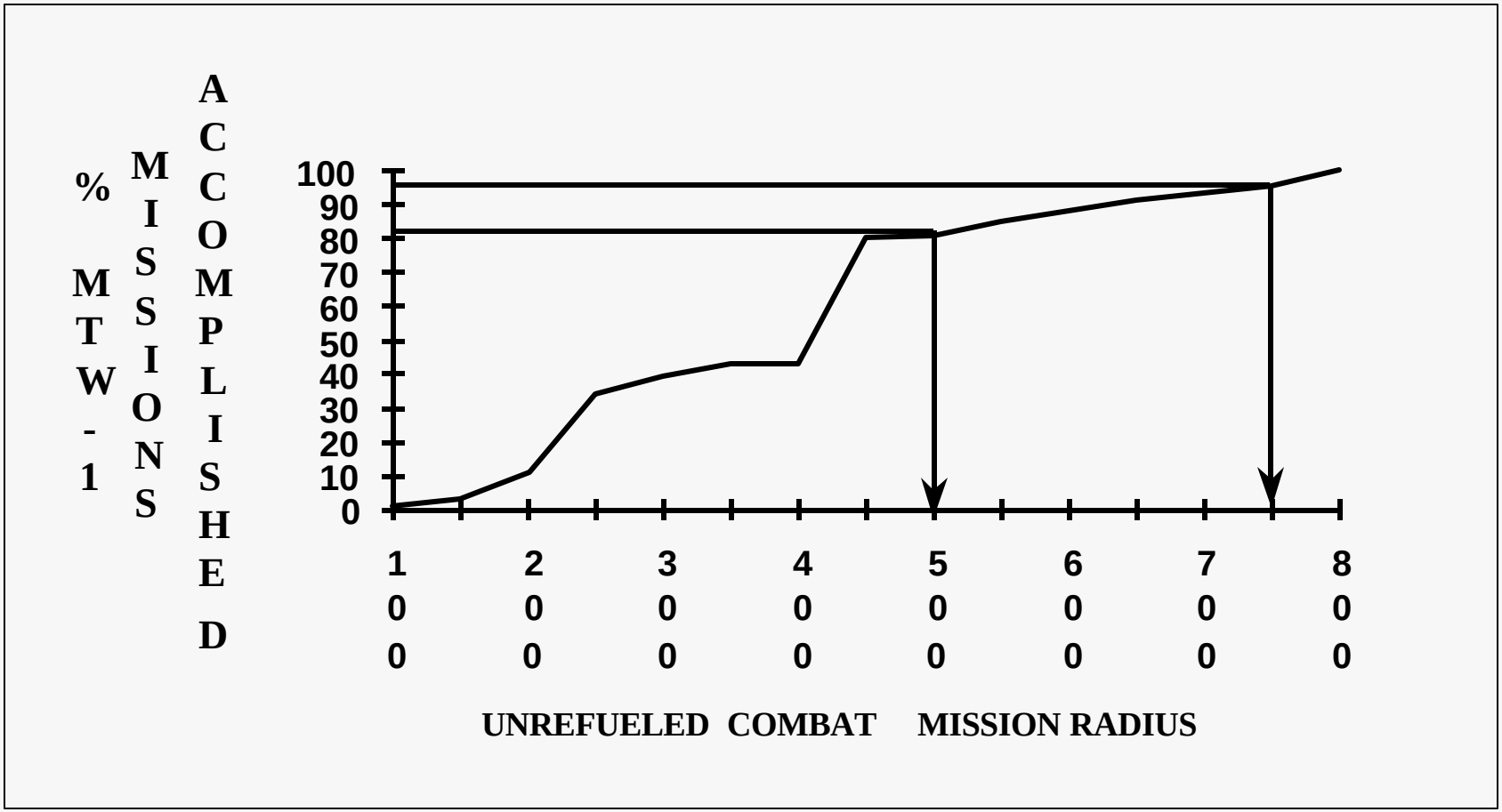
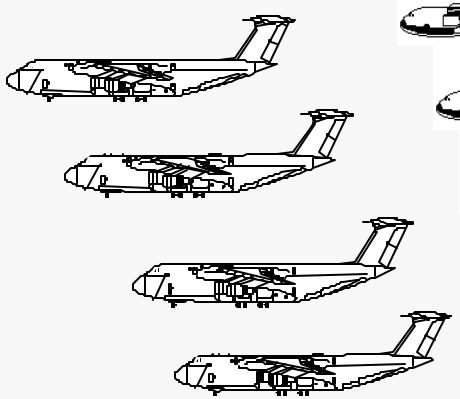
COEA RANGE ANALYSIS



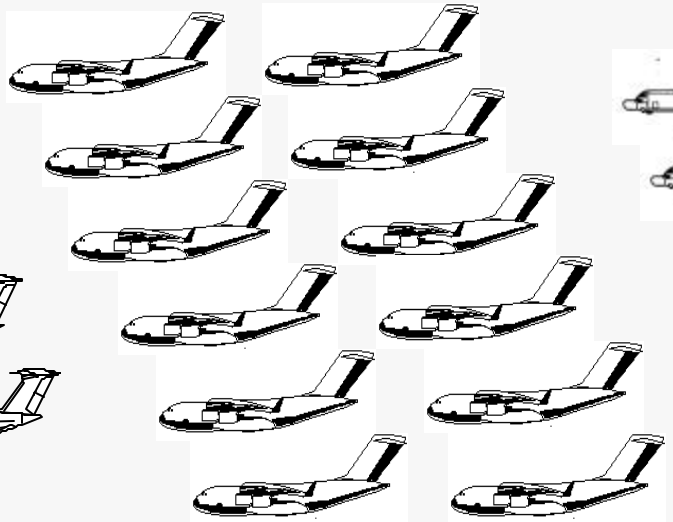
UPDATED COEA SELF DEPLOYABILITY

COMPARATIVE AIRLIFT AND TANKER REQUIREMENT SAVINGS

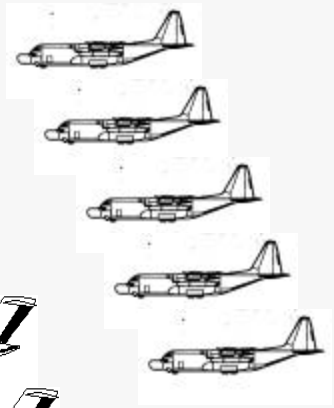
8 MH-53's INSIDE 4 C-5s



12 C-17s



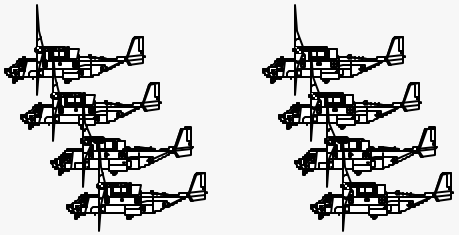
5 MC- 130's



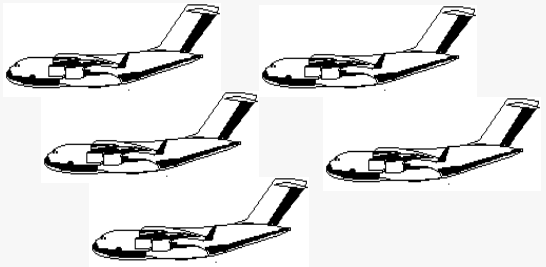
Totals

$3,824,000 **$6,192,000** **$650,000** **$10,666,000**

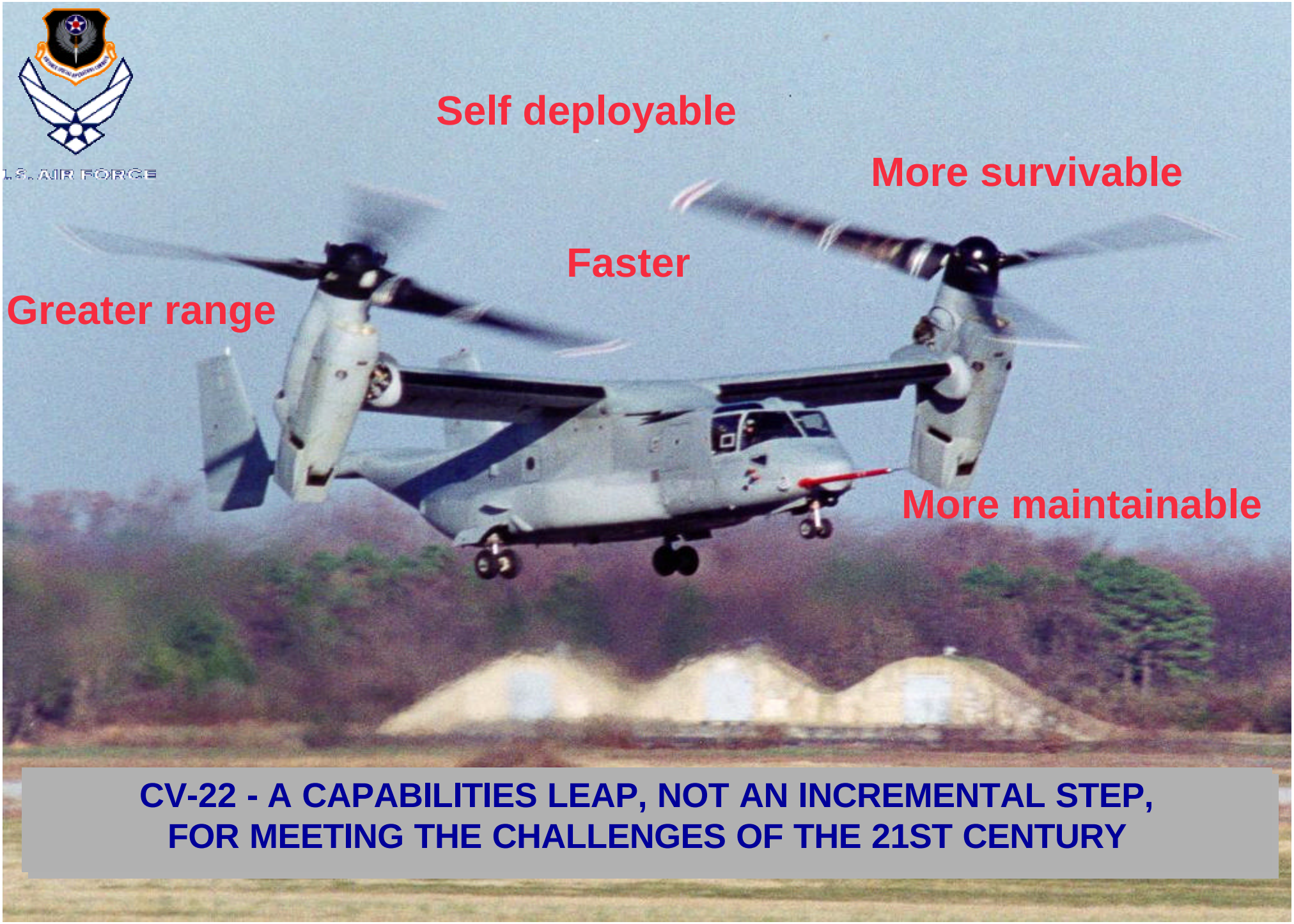
8 CV-22s



5 C-17s



$720,000 **$2,580,000** **$3,300,000**



CV-22 - A CAPABILITIES LEAP, NOT AN INCREMENTAL STEP, FOR MEETING THE CHALLENGES OF THE 21ST CENTURY

MV/CV-22 PROJECTED CAPABILITIES

U.S. AIR FORCE

KEY PERFORMANCE PARAMETER	MV-22 PROJECTION	CV-22 PROJECTION
MISSION RADIUS		
Pre-Assault / Raid (18 troops)	200 nm	265 nm	-
Land Assault (24 troops)	200 nm	236 nm	-
Land Assault (10K lb. Load)	50 nm	55 nm	-
Amphibious Assault (24 troops)	2 x 50 nm	2 x 93 nm	-
Amphibious Assault (10K lb. Load)	50 nm	118 nm	-
Long Range SOF Missions (18 troops)	500 nm	-	507 nm
Self Deploy (Range with 1 A/R)	2100 nm	2261 nm	2297 nm
MV Cruise Speed (Vmcp @ 3K/91.5 F)	240 kts	267 kts	-
CV Cruise Speed	230 kts	-	246 kts
Survivability	12.7 mm	12.7 mm	12.7 mm
VSTOL/Shipboard Compatibility	Yes	Yes	Yes
Aerial Refueling	Yes	Yes	Yes

The CV-22 …

• MULTI-MODE TERRAIN FOLLOWING/ TERRAIN AVOIDANCE (TF/TA) RADAR

DDITIONAL TACTICAL
COMMUNICATIONS
multaneous T/R on 4 Bands)

• MULTI-MISSION ADVANCED
TACTICAL TERMINAL (MATT
(Integrated with Digital Map)

• 900 ADDITIONAL GALLONS
OF INTERNAL FUEL+
CABIN AUX TANKS

VANCED, INTEGRATED
FENSIVE ELECTRONIC
WARFARE SUITE

PI/LPD RADAR
ALTIMETER

• COMPUTER AND DIGITAL
MAP UPGRADES

• SURVIVOR AVIONICS

MV-22/CV-22 COMMONALITY	
Airframe & Equipment	>90%
Flight Control Software	100%
Mission Software	>60%

• FLIGHT ENGINEER
SEATING ACCOMMODATION

…tailored for the Special Operations Mission

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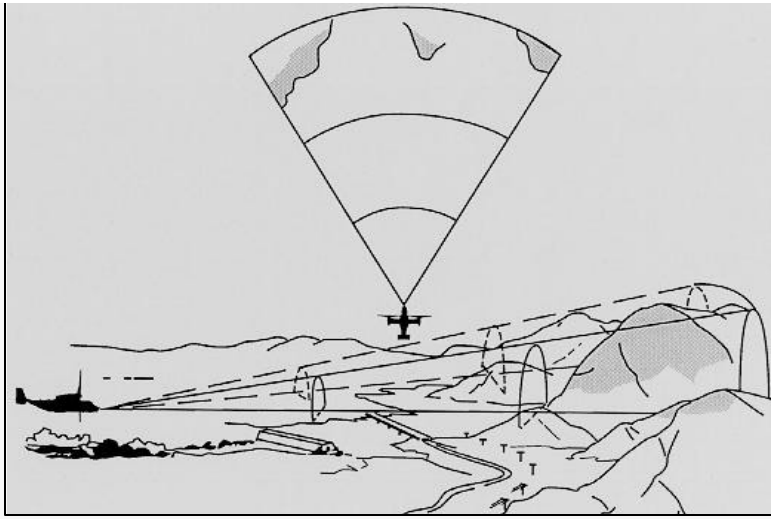
TERRAIN FOLLOWING/ TERRAIN AVOIDANCE RADAR FLIGHT



- Very low altitude, weather penetrating capability
  - 200’ cruise mode, 100’ helicopter mode
  - 40 - 290 Knots
  - TF, TA, GM, WX, BCN, ECCM
- Improved TF, Max Turn Rate 5.5 deg/sec
- First pass precision approach to IFR hover
- Obstacle warning, low altitude warning

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DETECTION AND THREAT AVOIDANCE AVIONICS

- No EWO, No Navigator
- Improved threat situational awareness
- Improved survivability through integrated electronic warfare systems
  - Multi-Mission Advanced Tactical Terminal (MATT)
  - Suite of Integrated RF Countermeasures (SIRFC)
  - Directional IR Countermeasures (DIRCM) (P3I Block 10)
  - AN/AVR-2A Laser Warning (P3I Block 10)

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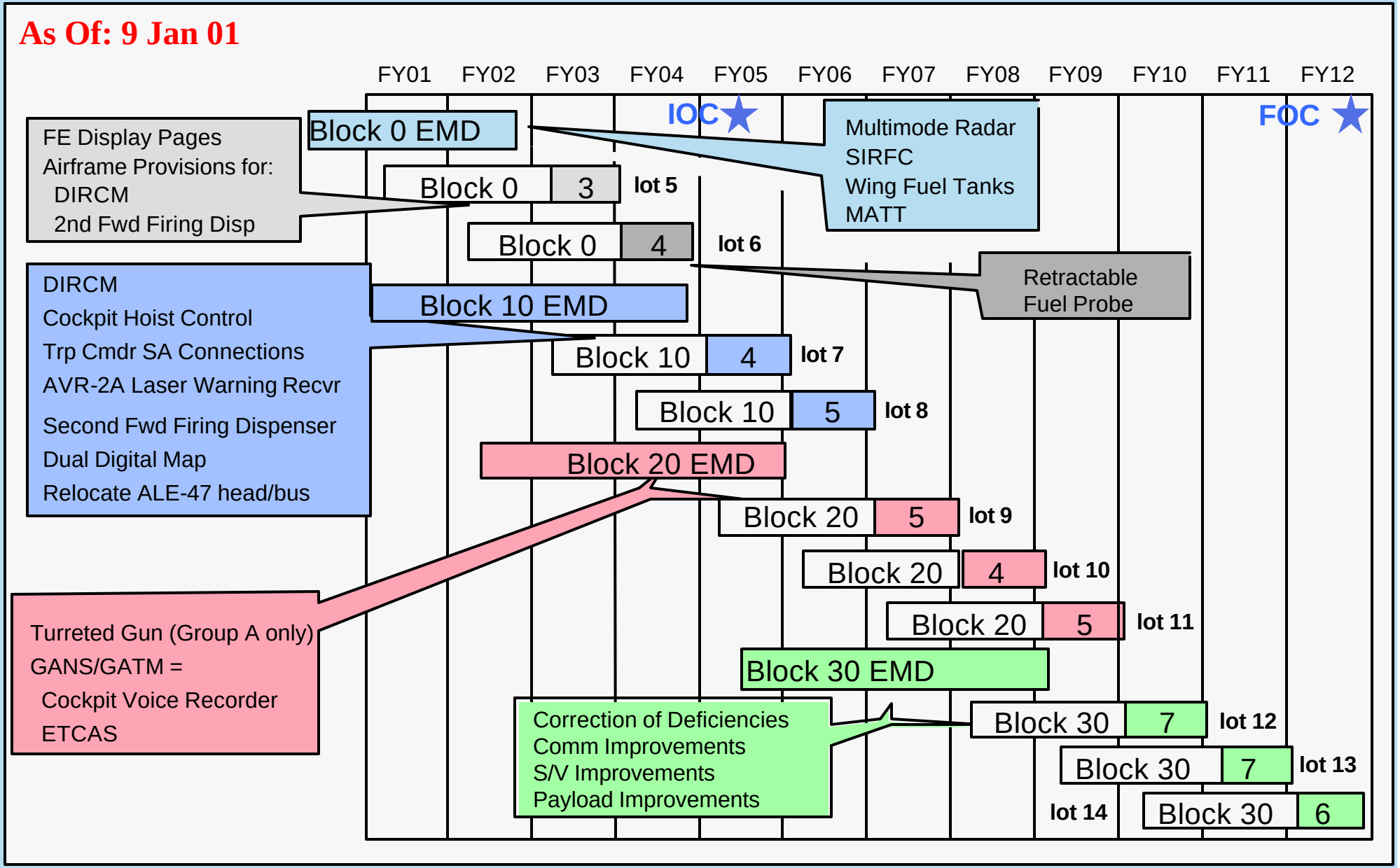
INCREASED CAPABILITY

EXTENDED UNREFUELED RANGE REDUCES TANKER REQUIREMENTS

CV-22 BLOCK UPGRADE STRATEGY



PLANNED PROCUREMENT

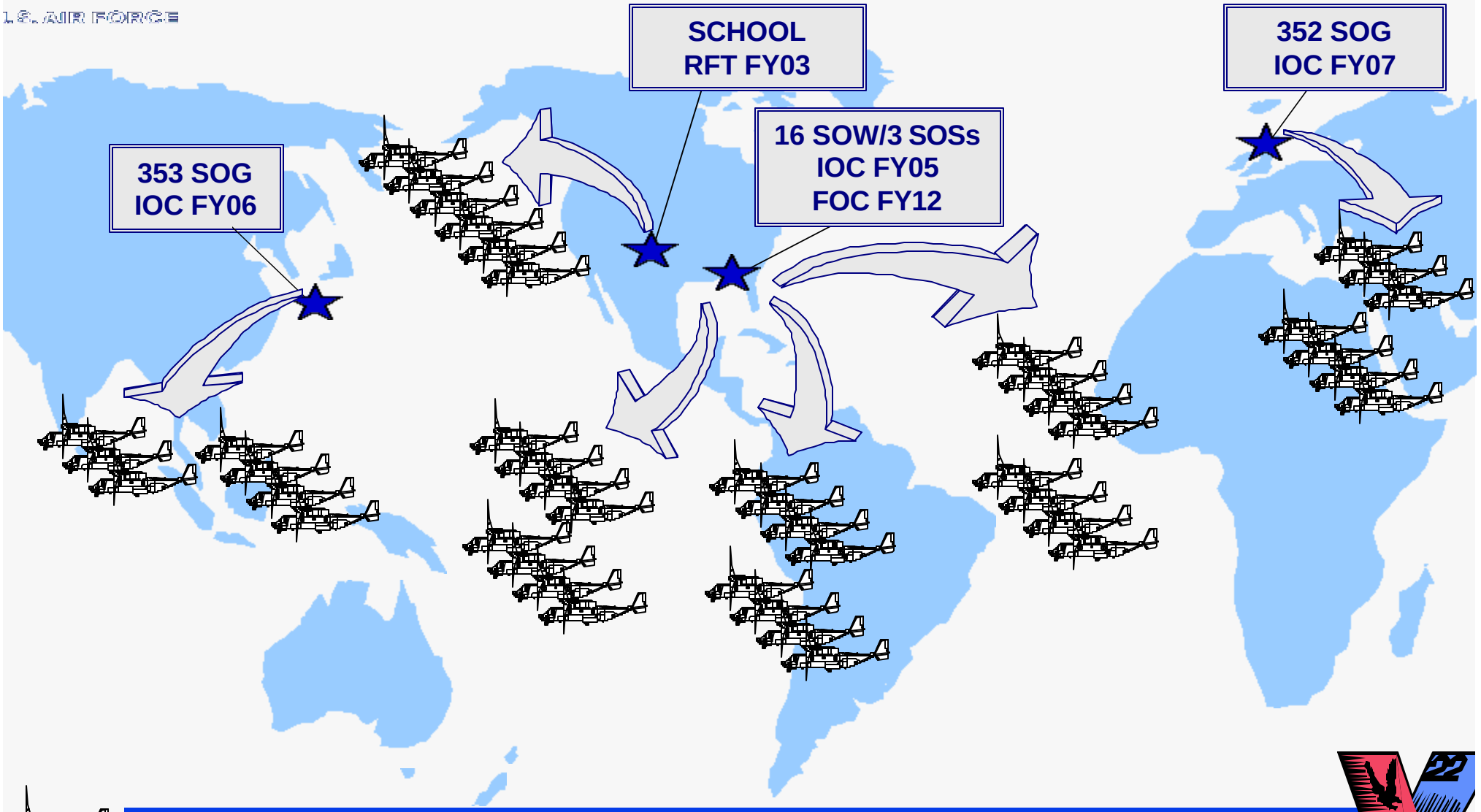
- USMC 360 MV-22s
- USAF & USSOCOM 50 CV-22s
- USN 48 HV-22s

TOTAL BUY 458 V-22

CV-22 Planned IOC - 6 aircraft FY05

CV-22 Planned FOC - 50 aircraft FY12

CV-22 Squadrons



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AIRCREW TRAINING

- Strategy
  - Joint initial training at MCAS New River NC
  - CV-22 mission qualification at Kirtland AFB NM
  - Refresher training and mission rehearsal at units
- CV-22 mission qualification aircrew training includes pilots and flight engineers
  - Simulator Ready For Training (RFT) at Kirtland AFB Sep 02
  - First training aircraft delivers Mar 03
- Unit level RFT planned 6 months prior to delivery of first aircraft at each unit
  - Hurlburt RFT May 03; PACOM RFT Aug 05; EUCOM Aug 06

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MAINTENANCE TRAINING

- Inter-service schoolhouse at MCAS New River NC
- Co-located service specific training
- 5 Air Force maintenance specialties to train
- Marines/Airmen will share MV-22 common training devices (TD)
  - Augment TDs with MV-22 aircraft
- CV-22 specific avionics TD scheduled RFT Aug 02

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CV-22 LOGISTICS

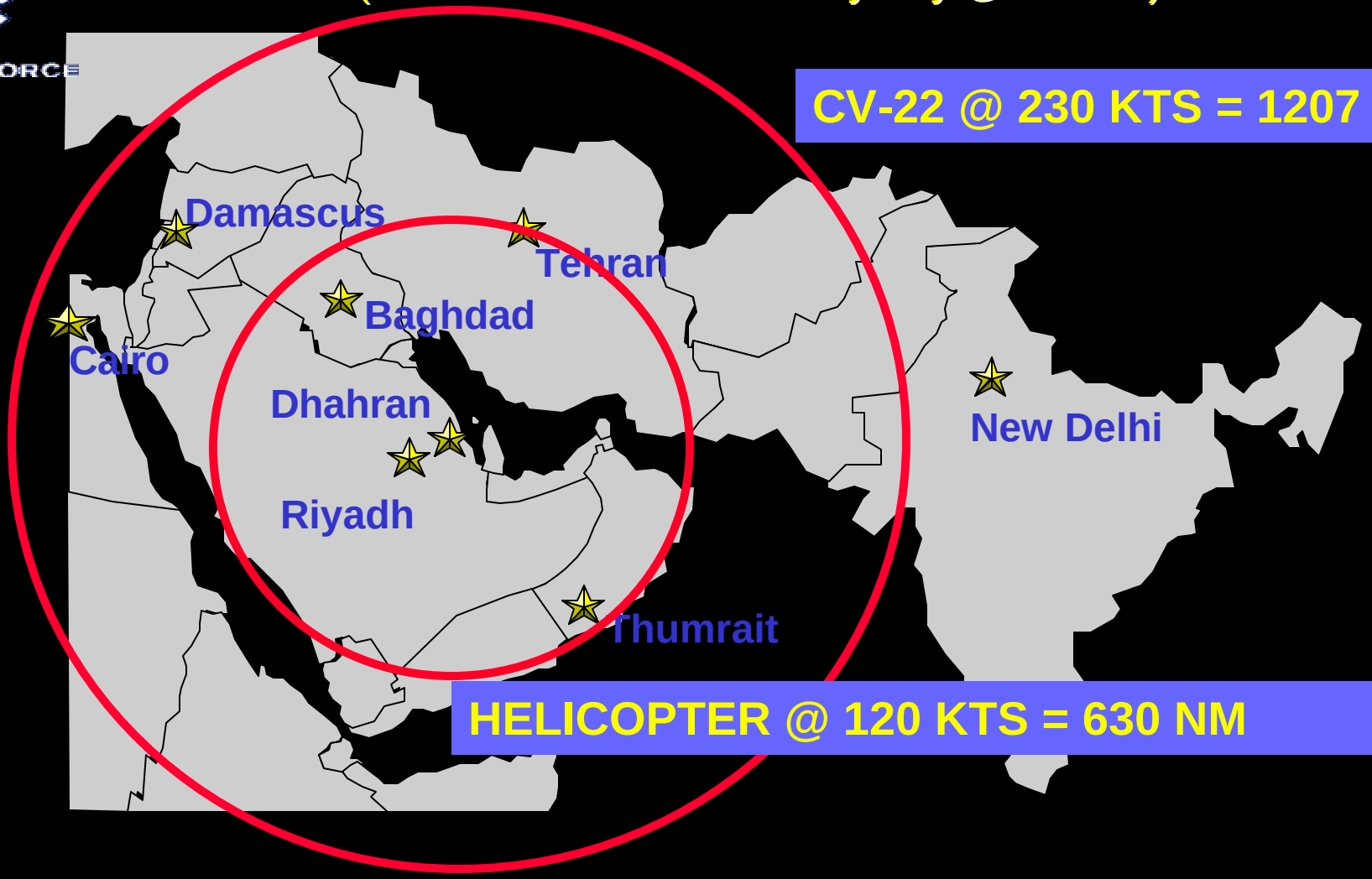
- Weapons system reliability
  - (0.77 Threshold/Key Performance Parameter)
- Tailored 2 level maintenance concept
- Reduced maintenance manpower requirements
- Improved BIT/False Alarm rates
- Electronic tech pubs
- Reduced logistics footprint
- No scheduled depot maintenance


SPIE Rig
External Loads
Night Operations
Fast Rope
Operational Flexibility
Formation
Self-Defense
Aerial Refueling
Shipboard Operations
Confined Area Landings
Over-water Ops

DESERT STORM MAX REFUELED RADIUS FROM DHAHRAN

(Tactical Airborne Crew Duty Day @ 10.5hrs)

U.S. AIR FORCE



CV-22 @ 230 KTS = 1207 NM

HELICOPTER @ 120 KTS = 630 NM

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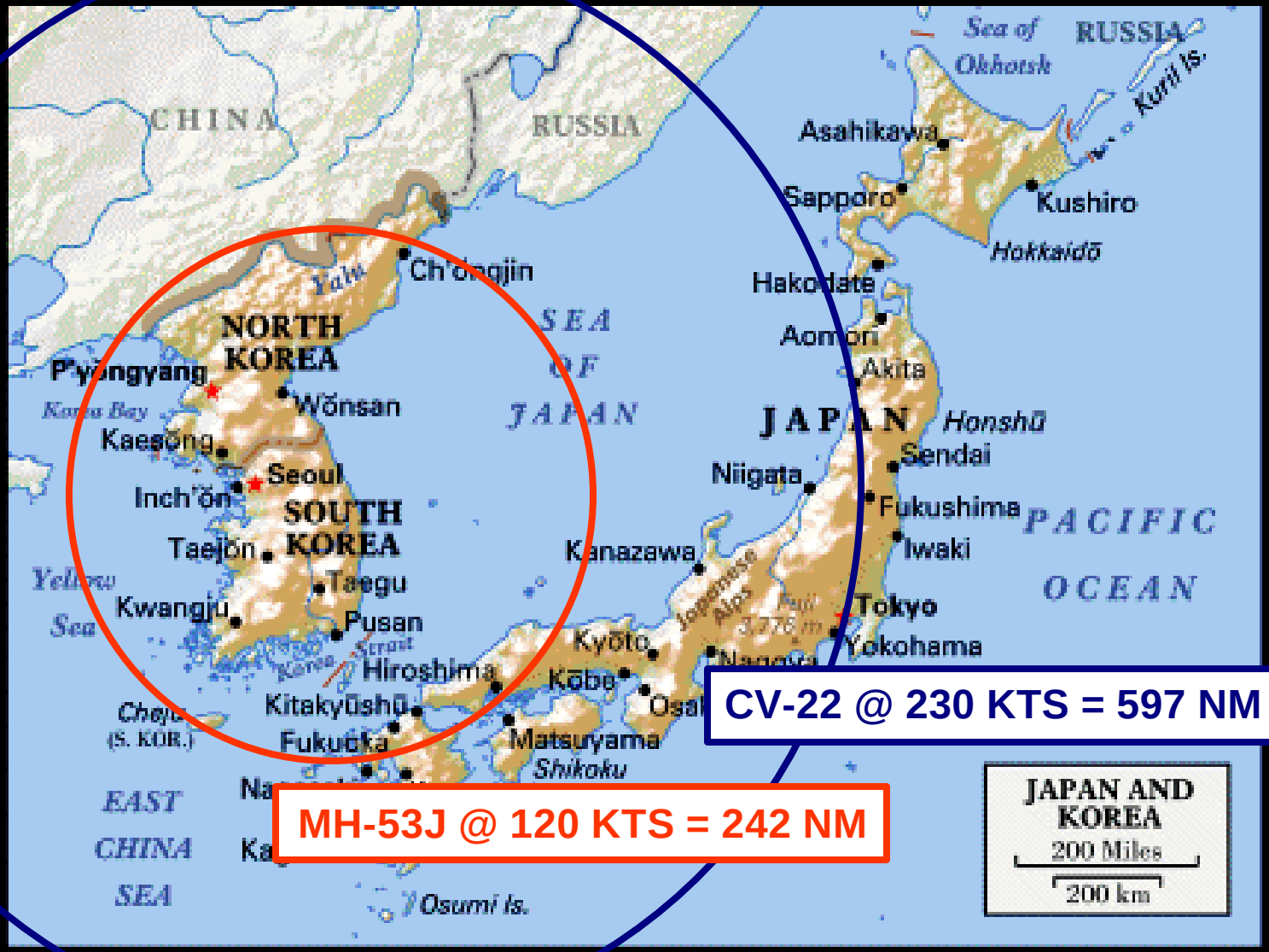
COMBAT RADIUS

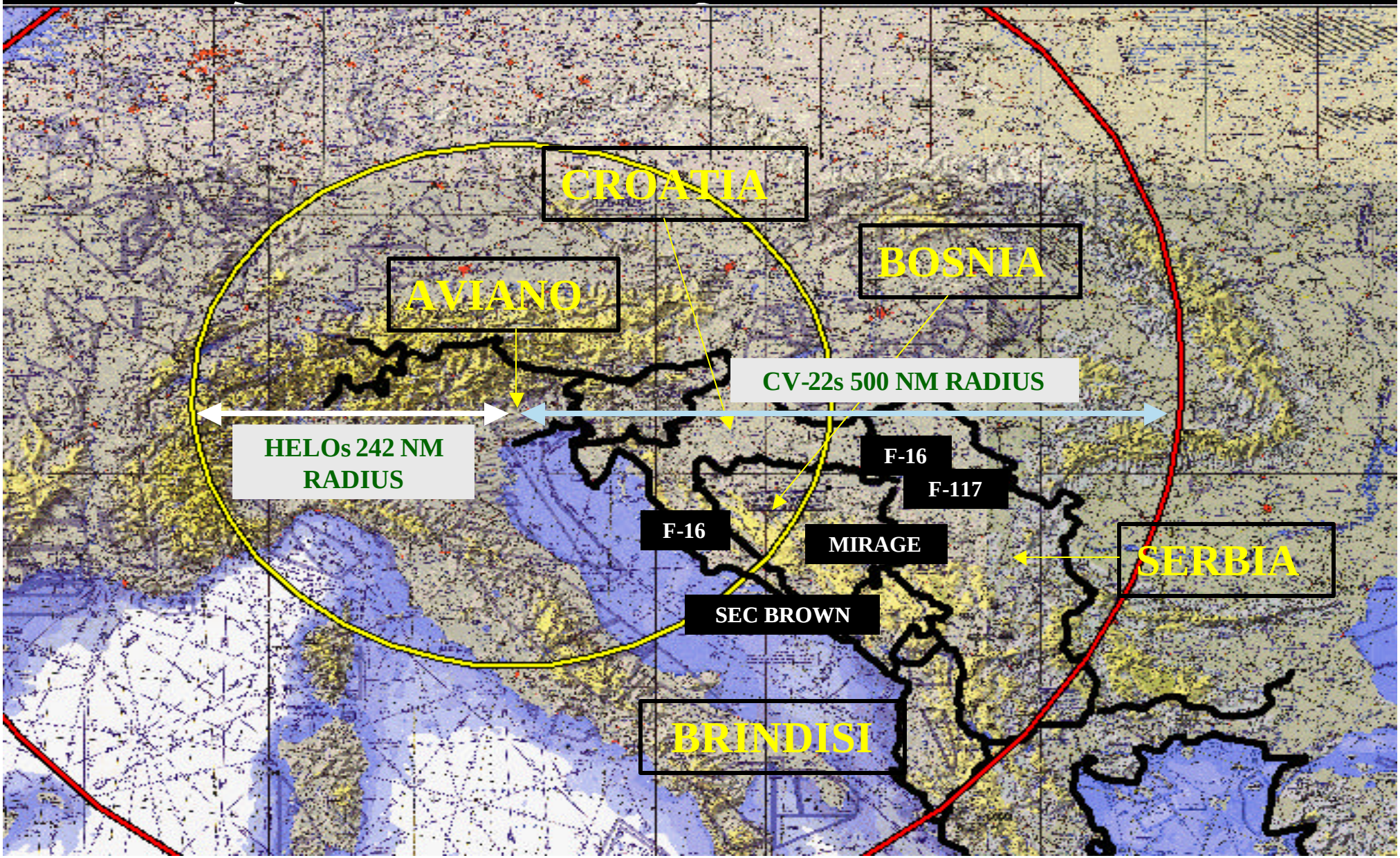
Low Level, Unrefueled, 12 Pax (non-floor loaded)



CV-22 @ 230 KTS = 597 NM

MH-53J @ 120 KTS = 242 NM

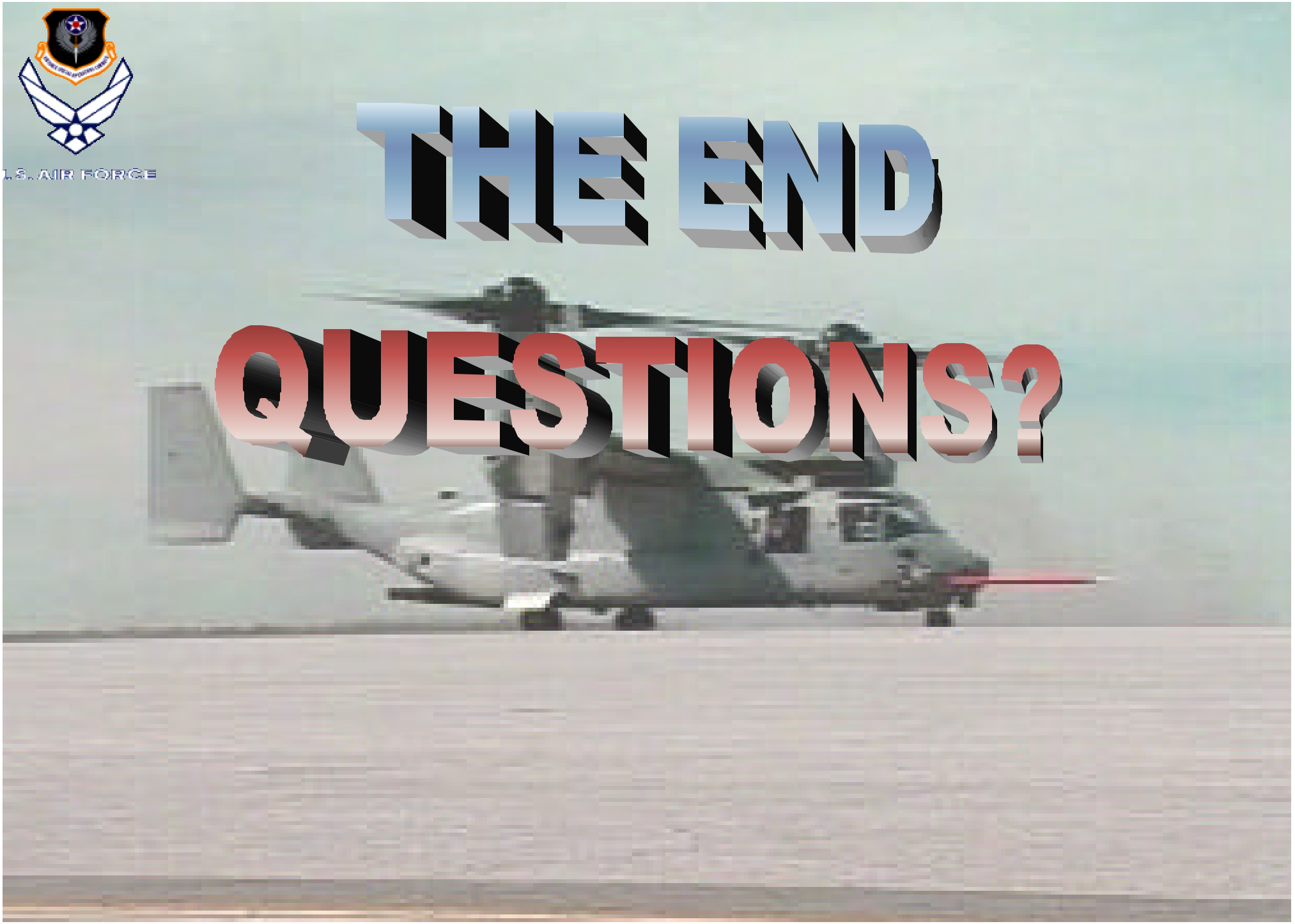
BOSNIA/SERB RECOVERY OPS / CSARs



U.S. AIR FORCE

CV-22 Summary

- **Meets USSOCOM's requirement for a high-speed, long-range, VTOL aircraft capable of accomplishing missions in single period of darkness**
- **COEA identified the CV-22 as the only alternative that substantially met SOF mission needs**
- **Tailored capabilities result in a multi-mission capable SOF platform needed to meet all USSOCOM principle and collateral missions**
- **The CV-22's hybrid technology provides a "leap forward" in capability and operational flexibility needed to meet future challenges**


U.S. AIR FORCE
THE END
QUESTIONS?